

The dimensions of this tooth are:—Entire length  $\cdot 4''$ ; length of portion above the alveolar margin  $\cdot 25''$ ; diameter at the base of the crown, in either direction,  $\cdot 14''$ .

The specimen is deposited in the British Museum, along with a large series of skins and skeletons of the same species collected by Mr. Blanford.

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The following papers were read:—

1. Notes on four Specimens of the Common Fin-whale (*Phy-salus antiquorum*, Gray; *Balænoptera musculus*, auct.) stranded on the South Coast of England. By WILLIAM HENRY FLOWER, F.R.S. &c.

(Plate XLVII.)

On the 20th of November last the crew of a fishing-boat belonging to Langston in Hampshire brought in the dead body of a large Whale, which they had found floating in the sea about fifteen miles from Havre. They succeeded in beaching the carcass near Fort Cumberland, at the entrance to Langston Harbour, about two miles east of Portsmouth. Hearing that it was being exhibited at this place, I went to see it on the morning of the 25th of November, and put down a few notes upon its external characters, which may be worth the notice of the Society, as it is only by recording all information which can be derived from every available example that an accurate history of these great Cetaceans can be obtained.

Unfortunately the present specimen, in some respects, afforded even less information than usual, in consequence of the very advanced state of decomposition it was in. The cuticle had almost entirely peeled off the surface; moreover fish and sea-birds (with which the part of the carcass floating above the surface of the water was covered when first discovered) had committed ravages upon many parts of the superficial tissues; consequently the natural colour was completely destroyed, and the whole animal appeared of a uniform dirty yellowish white. It was therefore in much the same condition as the large Fin-whale stranded at Pevensy in November 1865, and described in the 'Proceedings' of this Society for that year, at page 699\*. As far as could be judged by the external characters, it belonged to the same species.

The animal was lying on the right side, which position enabled me to obtain a view of the blow-holes and also of the dorsal fin, which were not seen in the Pevensy Whale, and to obtain a pretty exact general outline of its form (see Plate XLVII. fig. 1).

All zoological figures of large Whales must be looked upon in the light of compilations from various data, or as restorations from mea-

\* The skeleton of this animal is now in the Anatomical Museum of the University of Cambridge, having been, fortunately, secured in a perfect condition by Mr. J. W. Clark, the zealous curator of that excellent collection.



Fig. 1.

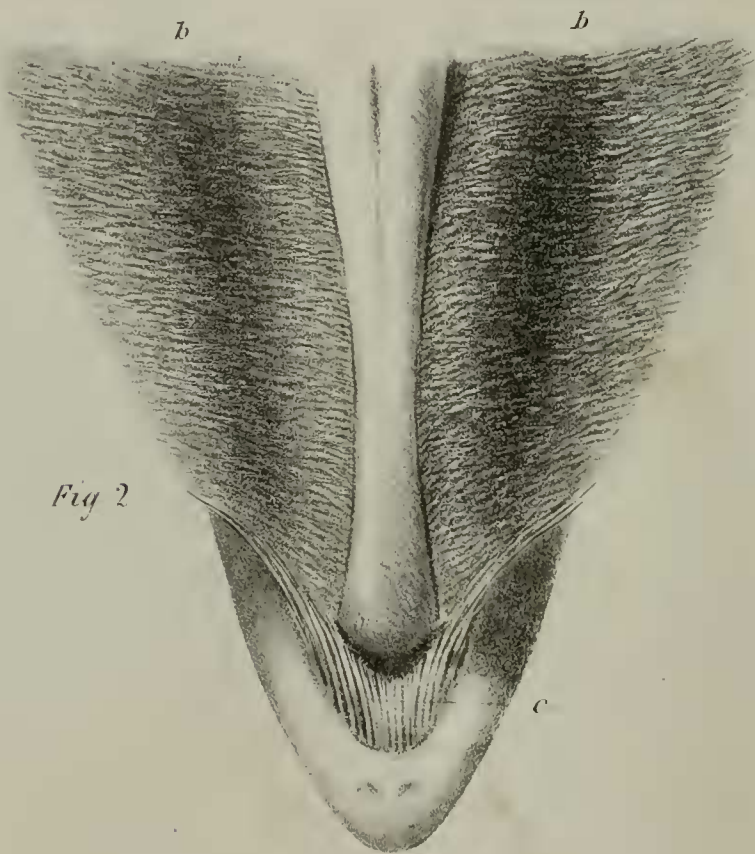
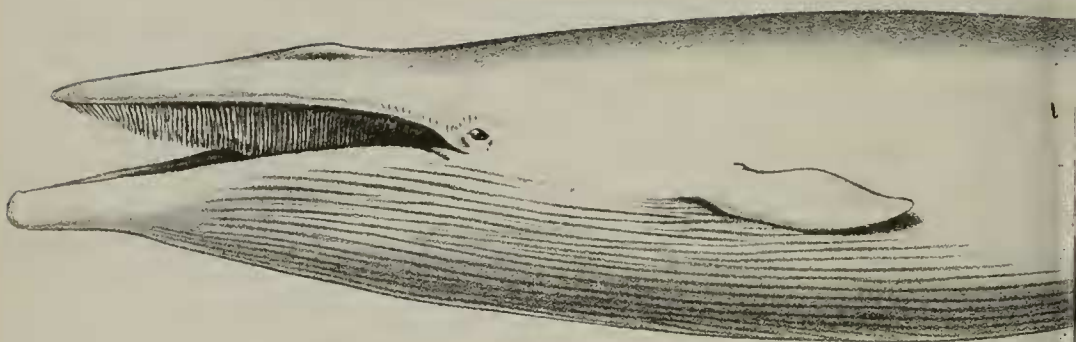
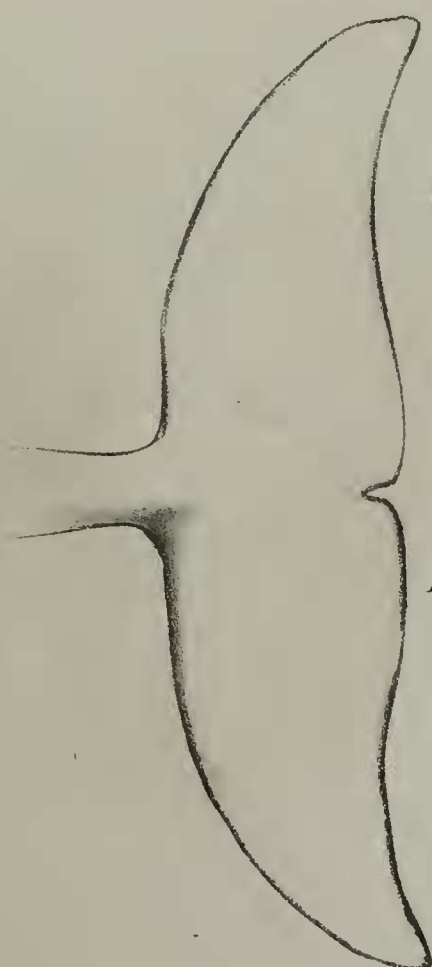


Fig 2



*Fig 3.*

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surements and drawings of various parts put together, as the animal when lying dead on the beach, flattened and distorted by its own weight, or inflated by the liberation of gases within its cavities, can give but little idea of its appearance when swimming in its native element. Hence there are considerable discrepancies between the most reliable of the figures we possess even of the most common species\*.

The exact length in a straight line, from the front of the lower jaw (which projected about 18 inches beyond the muzzle) to the middle of the tail, was 61 feet, or 6 feet less than the Pevensey Whale, and 1 foot more than a Whale of the same species and sex (male) taken in the Thames in 1859, and which, as shown by the condition of the bones, now in the Rosherville Gardens, was fully adult. From the end of the muzzle to the axilla was 19 feet 10 inches; from the same part to the middle of the eye 12 feet, to the hinder border of the dorsal fin 45 feet 6 inches. The dorsal fin rose gradually in front, with a convex border, to a vertical height of 1 foot 3 inches, the apex was short and recurved, the posterior border hollowed; the base was rather more than 2 feet in length. The flukes of the tail (Plate XLVII. fig. 3) measured 11 feet across, and 2 feet 10 inches from before backwards near the middle line. As in the Pevensey Whale, the right was markedly convex, and the left concave, on the upper surface, giving the characteristic screw-like form to the main organ of propulsion.

The terminal portion of the trunk, between the dorsal fin and the flukes of the tail, was, as usual in the species, strongly compressed, of great and nearly uniform vertical depth (4 feet), and sharply ridged above and below.

The pectoral fins, measured from the axilla to the tip, were 5 feet 4 inches long, and 1 foot 7 inches in greatest breadth, which was about midway between those points. Towards the tip the upper or ulnar border was somewhat excavated. The tip was rather sharply pointed.

The upper surface of the head was on the whole remarkably flat; but immediately in front of the blow-holes a strong median ridge rose rather abruptly, then gradually subsided to about midway be-

\* The most authentic representations of the external characters of the Whale under consideration with which I am acquainted are:—

1. From a specimen, 45 feet long, stranded in 1825 on the west coast of Rügen. Figured in 'Einige Naturhistor. Bemerk. über die Walle,' by F. Rosenthal. Griefswald, 1827. (Called *Balæna rostrata*, var. *major*.)

2. From an animal, 51 feet long, stranded on the coast of Holland. Schlegel, Abhand. a. d. Gebiete der Zoologie, Heft i. pl. 6, 1841. (Called *Balæna sulcata arctica*.)

3. From an animal, 40 feet long, stranded near Katwijk, in Holland, in 1841. *ibid.* Heft ii. pl. 9, 1843. (Called *Balænoptera arctica*.)

4. From an animal, 50 feet long, stranded in the Orkney Isles, 1856. R. Heddle, Proc. Zool. Soc. 1856, pls. XLIV. and XLV. (Called *Physalus duguidii*.)

5. From an animal, 40½ feet long, stranded on the Lofoden Islands. (Called *Balænoptera musculus*.) G. O. Sars, Vid-Selskab. Forhand. Christiania, 1865.

The various names assigned to these specimens by their respective describers illustrate the difficulties of the nomenclature of this group.



tween the blow-holes and the end of the snout; in front of this the surface was quite flat. The snout was pointed, flat above and below, and rounded at the extreme end, which projected  $6\frac{1}{2}$  inches beyond the anterior limits of the baleen. On this part, instead of the rayed indentation observed in the Pevensy Whale, there was a roundish depression about the size of a halfpenny piece on each side of the middle line (see Plate XLVII. fig. 2).

The blow-holes were situated in a deep hollow (wide behind and narrow in front) behind the before-mentioned median ridge, rather anterior to the eye, their front end being 10 feet 4 inches from the tip of the muzzle. Between them was a longitudinal median depression; each aperture was 13 inches long, curved, with the concavity outwards; and they were 2 inches apart in front, and 10 inches behind.

The lower jaw terminated anteriorly in a sharp median ridge, like the prow of a fast-going vessel. On each side of this ridge, about 1 inch from the middle line above and rather nearer below, was a vertical row of short white bristles, about a dozen on each side, placed rather irregularly, but averaging  $\frac{3}{4}$  of an inch between each. Each bristle was  $\frac{1}{2}$  inch in length, but not more than  $\frac{1}{8}$  inch projected above the surface. They were set in distinct fossæ, which were very evident, although most of the bristles had fallen out. I could detect no traces of hairs on any part of the surface of the upper lip.

The baleen of the two sides was continuous around the front of the palate. The anterior narrow blades were 7 inches long, and placed in a very reclined position (see Plate XLVII. fig. 2, *c*). The longest blades were 1 foot 9 inches in length, including the hairy ends. There were about 350 blades on each side; and in the middle of the series 24 blades exactly occupied the space of 1 foot. As in the Pevensy Whale, the baleen was slate-coloured externally, and white at the inner edge; so that the hairy surface, forming the greater part of the roof of the mouth, was all of a yellowish-white colour, except quite at the outer edge. Each blade was mainly of the dark colour, but near its inner border longitudinally striated with pale horn-colour.

The position in which the animal was lying, with the lower jaw thrown much to one side, so as to expose the baleen-plates of the left side from end to end, enabled me to observe a structure which I did not see in the Pevensy Whale, and have not found noted in any description. Outside the main series of baleen-plates, growing from the "coronary band" ("Horn-Kranzband" of Rosenthal\*), which encircles their base, was a fringe of stout coarse fibres, like those of the inner surface of the whalebone, but strongly curled. Each of these fibres, or hairs, when straightened was about 3 inches in length; and the whole series extended from the angle of the mouth for 18 inches forwards. No trace of them was to be seen more anteriorly.

The characteristic longitudinal furrows of the throat extended forwards on the side of the lower lip to midway between the angle of the mouth and the end of the chin; but in the median line they

\* Ueber die Barten des Schnabel-Walfisches (Akad. d. Wissenschaft. Berlin, 1829).

reached almost to the symphysis menti, and laterally they extended as far as the insertion of the pectoral fins. Counting from the pectoral fin to the middle line on the exposed side, there were about twenty-six furrows; they were all widely distended. But all this part of the surface, as well as the abdomen, had been so much damaged by the birds (as it was the part which floated uppermost) that it was impossible to make any satisfactory observations upon it.

The penis was completely protruded, as it always appears to be in Whales that have been long dead, being probably forced from the sheath in which it naturally lies concealed by the pressure of the gases arising from decomposition accumulating within the abdominal cavity. The hinder edge of its base was 21 feet in front of the end of the tail, or 5 feet 6 inches in front of the hinder border of the dorsal fin. Its length was 6 feet 6 inches. Its diameter at the base 1 foot, from which it gradually tapered to 1 inch at the apex. The orifice of the urethra was terminal, and surrounded by four distinct rounded lobes. The nipples were placed about 6 inches behind the root of the penis, and 2 inches apart; each was lodged in a groove, much compressed, ridged or keeled on the free edge, with the anterior border sloping gradually to the apex, and the posterior edge almost vertical, about 1 inch from before backwards at the base, and  $\frac{3}{4}$  inch in height at the apex, and with a soft nodulated surface.

I have not had any opportunity of examining any of the bones of this specimen; but I will add to this notice some observations upon the skeletons of three other Whales presumably of the same species which have been stranded on various parts of the south coast of England.

1. This skeleton, the smallest of the three, was prepared from an animal taken at Margate in 1850, and was kept at that place until December 1864, when it was brought to London and exhibited in a waxwork show at Shoreditch as an additional Christmas attraction. After it had ceased to "draw," I purchased it from the proprietor; and as it was too imperfect to mount for any museum, the bones have been divided between the Royal College of Surgeons and the Cambridge University.

The animal was very nearly adult; the epiphyses were united to both ends of the humerus and the upper end of the radius and ulna, though still loose on the bodies of the dorsal vertebræ. The skeleton wanted the malar bones, the tympanics, the stylo-hyals, the pelvic bones, almost all the carpals and phalanges, many of the chevron bones, and the three or four last caudal vertebræ. The spines and transverse processes of the vertebræ were much broken.

The entire length, the vertebræ being placed close together and the end of the tail missing, was 55 feet. Fifty-seven vertebræ were present. The second, third, fourth, and fifth cervical vertebræ have their upper and lower transverse processes united so as to form complete rings. The sixth has very short lower processes, very unequal in size on the two sides. In the seventh they are entirely absent.

There are fifteen pairs of ribs; the first 46" long in a straight line from the tubercle to the inferior extremity, with a long capitular